MARINE REVIEW.

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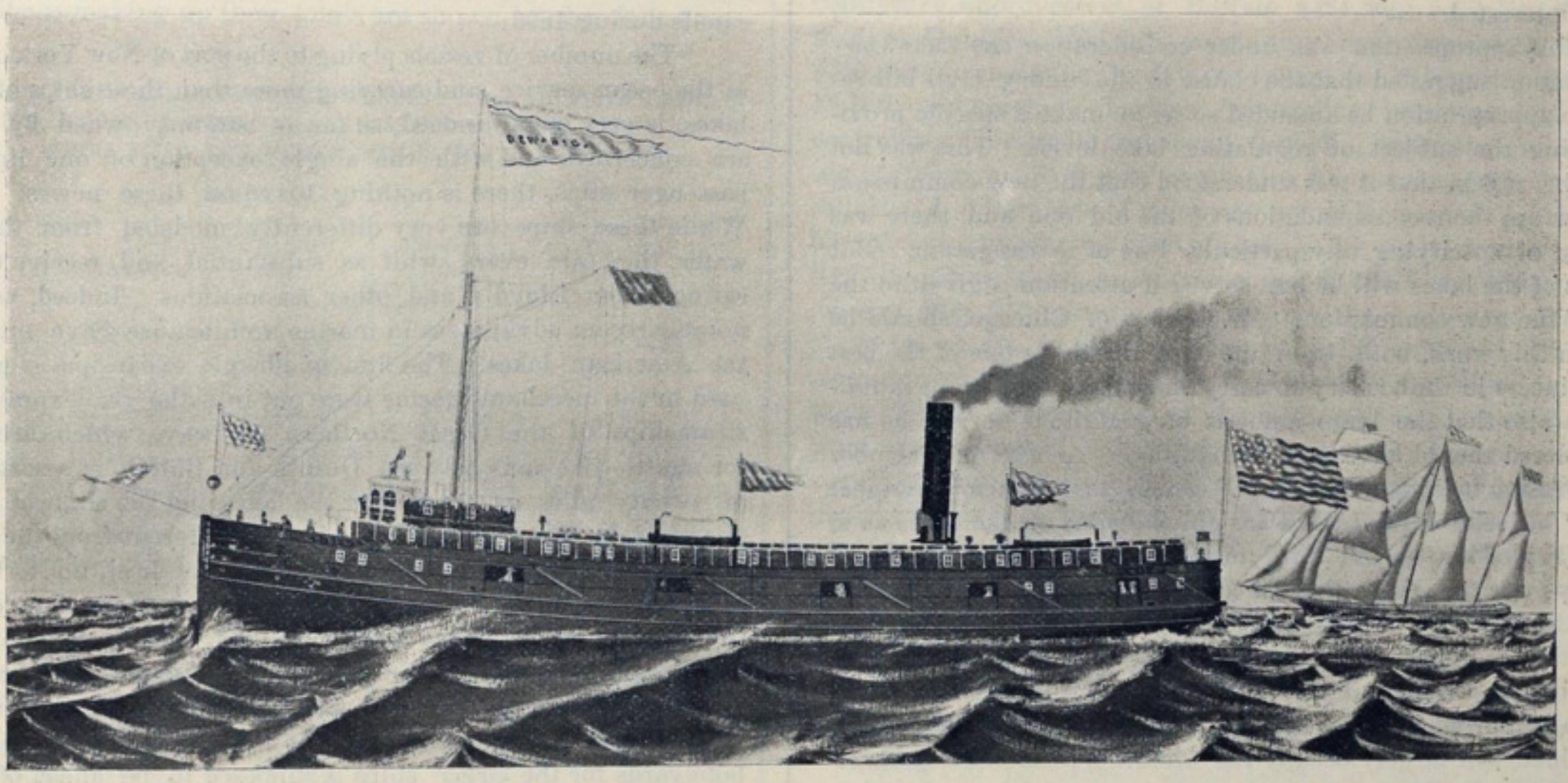
Some Facts About the Pewabic.

"If the wreckers at Alpena have found a sunken steamer with one arch, and if she is located about six miles south-southeast of Thunder bay island, this is proof enough for me," says Capt. Geo. P. McKay of Cleveland, "that they have the Pewabic. I have always held that she was between five and six miles from the island in the direction stated. The fact of the upper works and the upper deck being entirely gone, has been fully understood as they floated off when the steamer went down. But the whole trend of the dispatches, even to the direction in which the bow of the vessel is turned, is corroborative of conclusions that were reached immediately after the accident. The Pewabic was sunk on August 8, 1865, at 8:30 in the evening. The report of a hundred or more lives having been lost on her is incorrect. The number of lives lost will never be known, but from the most reliable information that I could obtain after the accident, I have always been of the opinion that the total was not more than forty. Capt. Ed. Mooney of the steamer Wawatam was wheelsman with me at the time and Capt. George Cleveland who was in the steamer Jim Sheriffs when I last talked with him, was mate. I think these are the only members of the crew besides myself who are still alive.



STEAMER PEWABIC, SUNK IN 1865 AND JUST LOCATED IN LAKE HURON.

The story of the safe containing vast sums of money and other reports of treasure going down with the vessel are all wrong. At that time our freight was paid in script of the mining companies. This was in the safe, but it would be valueless now. I understand anyhow that this exchange paper had been traced and the mining companies that issued it had paid up in genuine money. The only money in the safe was the small amounts taken from the passengers on the trip. The amount and quality of the copper has also been exaggerated, but this part of the cargo is, of course, worth considerable labor if it can be secured. There was about 600 tons in all, 200 tons of which was ingots and slabs, 200 tons barrel stamp work and 200 tons in mass copper. We also had 100 to 150 tons of pig iron on deck."

The searching expedition that found the Pewabic on Monday last was sent out from Milwaukee by the American Wrecking & Salvage Co., a corporation organized to undertake the work of trying to find the vessel and raise her cargo. They had the small steamer Root, equipped with a patent diving bell and other necessary apparatus. As the Pewabic is in 160 feet of water there is still considerable question as to whether the cargo will ever be recovered. Patents on the diving bell that was used in the search are held by Worden G. Smith, who is in charge of the expedition. The bell is fitted with search lights, telephone, arms for grapling, boring, etc., and is claimed to work admirably.

General Improvement in Freight Outlook.

As a result of general improvement in the iron industry, the lake freight market has been decidedly active during the past few days, and the hopes of vessel owners have been raised by the volume of business that is offered. But rates at which some contracts are being made are very discouraging, as it is thought they will tend to hold down wild freights, unless the improvemnet in the market now at hand proves to be of a very forcible kind. Just before going to press, announcement is made of a season contract covering quite a jag of Escanaba ore at 45 cents, the vessels agreeing to move part of the ore even through November. Shippers also claim to have options on tonnage to move ore from the head of the lakes for the full season at 65 cents. It is thought, however, that as the volume of business increases, even without higher wild rates, the vessel owners who have allowed their ideas of the future to fall very low will take on a more confident feeling, and the extent of contracts at the figures quoted above will not be very great.

The worst immediate feature of the general freight situation is a great scarcity of coal, due it is said in a large measure to insufficient supplies of cars. A scarcity of railway cars so early in the season is exceptional, but cars are actually very scarce and have been for some time past. The unusual scarcity of the past week undoubtedly indicates a large volume of business. The lake fleet, carrying 20 to 30 per cent. more cargo each trip than was carried last season from Lake Superior, is contributing very largely to the heavy movement of freight that is causing this scarcity of cars, and the vessel owners who are accepting low contrats are prompted by their opinions of increased capacity on deep water. The majority prefer to decline the cheap freights, however, and take chances on the improvement which they are expecting from this time on.

It is expected that everything will be in readiness in about a week to pump out the big hole for the dry dock of the Cleveland Ship Building Co.'s new plant at Lorain, and that the ship yard appliances will be far enough advanced by Aug. 1 to admit of a keel for a ship being laid about that date.

The Review has excellent photographs of lake ships.

Opportunity to Settle the Lake Levels Question.

Congress has just appropriated $150,000 to be expended for surveys, examinations, etc. of deep water routes from the great lakes to Atlantic tide water, in accordance with the report of the Deep Waterways Commission submitted to the president in January last, and herein lies the opportunity of lake shipping interests to secure as members of the engineer commission that is to expend this money men who will give consideration, in connection with the seaboard canal surveys, to the question of regulation of lake levels. There is no doubt of the authority the new commission will have to consider this question. One of the chief recommendations of the International Commission that reported in January last, and the first of its recommendations, in fact, was that complete surveys and examinations be made and all needful data to mature projects be procured for controlling the level of Lake Erie and projecting the Niagara ship canal.

The new appropriation calls for a commission of three engineers, to be designated by the president, and of which one member *shall* be from civil life. The other two *may* be detailed, one from the army engineer corps and one from the coast and geodetic survey. The wording of the law is important, as it is clearly provided that one of the engineers must be from civil life, while the president is authorized to select the other two members as he sees fit. He may detail one each from the army engineer corps and the coast survey corps, but he is not required to do so. It is expected, of course, that one member of the commission will be from the army engineer corps. The other two should be engineers who have a full knowledge of the requirements of lake commerce, and who may be expected to submit a report covering the question of regulating lake levels, in which vessel men are so very much interested.

When this appropriation was under consideration the Lake Carriers' Association suggested that the clause in the sundry civil bill relating to the appropriation be amended so as to make a specific provision regarding the subject of regulating lake levels. This was not done, for the reason that it was understood that the new commission would follow out the recommendations of the old one and there was no necessity of specifying any particular line of investigation. But the interests of the lakes will be best served if attention is given to the make up of the new commission. Mr. Cooley of Chicago, should be continued in this work, both from the fact that he is one of the best equipped egineers in the country to carry on such investigations intelligently, and also that the large amount of gratuitous service he has already rendered should have some recognition. As a second member of the commission it is about certain, of course, that an army engineer officer will be selected, but there are grave doubts on the lakes as to the advisability of having the third member selected from the coast survey corrps, for the reason that officers of that corps are wholly in experienced in the work of lake waterway improvements. The third member of the commission should be an engineer who would really be looked upon as a representative of lake shipping interests. While the main object for which the International Commission was organized, and which will largely occupy the attention of the new commission, is the determination of the best route for a canal from the lakes to tide water, it is the opinion of the vessel interests that the important question of regulating the level of Lake Erie by a dam at Niagara, and the subject of lake levels generally, should form an essential part of such investigation. The development of a rational system of improvement in lake waterways and harbor channels should keep pace with any scheme of canal construction which may be projected from the lakes to tide water. Under the present system of improvements, channel depths on Lake Erie will still be dependent upon the prevailing stage of water, after dredging has been carried out on the 20-feet navigation scheme. We will still have depths varying from 16 to 20 feet. Such conditions are essentially bad for economical transportation, for in order to meet the demands of commerce the lake tonnage must be adequate to carry the lake freight during seasons of low water when steamers can take only partial cargoes, which results in a surplus tonnage in high water periods, the cutting of rates and general depression in vessel interests.

This is all wrong. No matter what depth may be decided upon as that which should be obtaind for our lake channels, it is essential that such depth should be maintained as nearly constant as possible throughout the entire season of navigation, so that vessels may be constructed for some fixed draft and carry full cargoes at all times when in commission—a condition which is of far greater importance to the lakes than that of having deep-water connection by canal with New York. Such being the case it is the duty of commercial bodies on the lakes to ask for a representative on this new commission who will give attention to the important question of regulation of lake levels. Trade organizations in several of the western cities have recommended the appointment of Mr. Geo. Y. Wisner of Detroit as a third member of the commission. No better selection could be made. Mr. Wisner is recognized by all lake interests as an engineer specially suited to work of this kind. He has probably given more attention than any other engineer in the country to the problem of regulating lake levels. He possesses a full knowledge of conditions surrounding lake commerce, and in his dealings with officers of the Lake Carriers' Association and boards of trade in different parts of the lakes he has been regarded at all times as a man of very sound judgement. The new commission is undoubtedly authorized to consider the lake levels question, but if two of the members are antagonistic to the project it will undoubtedly be pigeonholed indefinitely. This is why Mr. Wisner's appointment as the third member should be urged very earnestly. That the level of Lake Erie can be regulated and controlled by a dam at Niagara, is no longer questioned by any one who has given the matter careful study, but how such result may be most economically and successfully obtained can only be determined by further investigation. The sooner such investigations are made, the quicker will we be able to profit from improvements which will give channels a greater depth and constant stage.

Recognizing the Importance of Lake Shipping.

The New York Sun of recent date pays this tribute to the lakes in connection with a discussion of the traffic of St. Mary's Falls canals during 1896:

"The number of vessels plying to the port of New York or elsewhere in the ocean service, and carrying more than these ships of the inland lakes, is very small indeed, so far as bottoms owned by Americans are concerned, and with the single exception of one line of ocean passenger ships, there is nothing to equal these newest lake fleets. While these ships are very differently modeled from those on salt water, they are every whit as substantial, and receive the highest ratings from Lloyd's and other associations. Indeed, many of the notable recent advantages in marine architecture have originated on the American lakes. The first quadruple expansion engines to be used in the merchant marine were put into the two express passenger steamships of the Great Northern railway, which are scheduled for shuttle-like runs between Duluth and Buffalo at a sustained speed of twenty miles an hour. On the lakes and the connecting shallow channels, be it remembered, this is very different from the same speed in a seaway with plenty of water under the keel, no tortuous river to thread, no currents to push against, and no stops at way ports and lift locks. On the lakes too, were first used in merchant service tubulous steam generators in place of the time-honored boilers. The lakes have developed, under stress of circumstances, new methods of steel construction for hulls, and the channel system in use at most lake yards for the larger ships is supposed to be ahead of any other method for strength and saving. The lakes, too, have the only exclusive passenger express steamships in the world in use for long-distance travel. They have facilities for cargo despatch that are the wonder and admiration of all who see them. Lake ships can be loaded with grain at the rate of 1,000 bushels a minute, or with ore at the rate of 1,000 tons an hour, or with coal by whole car loads at once, the loaded freight cars being picked up in hoists, run over the ship, turned bottom side up, and returned to the dock, all in less than two minutes. Ore and coal are unloaded from the vessels' holds, either by hand shovelling or by automatic operating machines, at the rate of 250 or 300 tons an hour. This rapid despatch is necessitated by the short season, the short distance traveled and the enormous amount of freight to be moved. It is probable that not less than 40,000,000 tons of freight will be moved on all the inland lakes of the chain this year."

The large single-sheet chart of Georgian bay, just issued by the British admiralty, was prepared from the surveys on which Staff Commander J. G. Boulton, R. N., has been engaged for several years past. This chart may be had from the Marine Review for $1.75. The price is higher than is usually charged for navigators' charts, but this one takes the place of probably ten sectional charts and is corrected up to date.

Lake Superior Commerce to June I.

Although there is a decrease of a little more than half a million tons in shipments of freight of all kinds to and from Lake Superior to June 1, there is some disappointment among vessel owners who watch the canal statistics, as the shortage is not as large as was expected. On June 1 of this year the freight movement, made up from reports of both canals at Sault Ste. Marie, aggregated 2,204,955 net tons, against 2,746,825 net tons on June 1, 1896. The principal decreases up to the first of the present month, as compared with the same date a year ago, are: Wheat, 2,750,000 bushels; iron ore, 453,000 net tons; soft coal, 70,000 net tons; hard coal, 12,000 net tons. The flour movement is about equal to that of a year ago. Following is a full summary of canal commerce to June 1 of each year for three years past:

MOVEMENT OF PRINCIPAL ITEMS OF FREIGHT TO AND FROM LAKE SUPERIOR.

ITEMS.	To June 1, 1897.	To June 1, 1896.	To June 1, 1895.
Coal, anthracite net tons	52,960	64,163	48,138
Coal, bituminous, net tons	339,389	409,491	44,038
Iron ore, net tons	890,305	1,343,284	1,051,129
Wheat, bushels	11,513,671	14,279,954	4,662,390
Flour, barrels	1,240,585	1,029,916	1,465,753

The total movement of freight of all kinds to and from Lake Superior to June 1, 1897 is 2,204,955 net tons, against 2,746,825 net tons on June 1, 1896, or a decrease of more than half a million tons. The various items making up these totals are shown in the following table:

REPORT OF FREIGHT AND PASSENGER TRAFFIC TO AND FROM LAKE SUPERIOR, FROM OPENING OF NAVIGATION TO JUNE 1 OF EACH YEAR FOR THREE YEARS PAST.

EAST BOUND.

ITEMS. DESIGNATION.	To June 1, 1897.	To June 1, 1896.	To June 1, 1895.
Copper....Net tons	23,984	25,085	18,892
Grain....Bushels	3,934,497	4,275,098	.....
Building Stone....Net tons	.....	1,907	2,905
Flour....Barrels	1,240,585	1,029,916	1,465,753
Iron ore....Net tons	890,305	1,343,284	1,051,129
Iron pig....Net tons	....	3,083	6,983
Lumber....M. ft. b. m.	107,574	110,816	87,651
Silver ore....Net tons	.....	.....	.....
Wheat....Bushels	11,513,671	14,279,954	4,662,390
Unclassified freight Net tons	31,139	17,110	11,844
Passengers....Number	594	1,053	954

WEST BOUND.

Coal, anthracite....Net tons	52,960	64,163	48,138
Coal, bituminous....Net tons	339,389	409,491	44,038
Flour.... Barrels	.....	62	150
Grain.... ... Bushels	.....	1,109	10,250
Manufactured iron....net tons	19,584	14,894	11,128
Salt.... .....Barrels	58,735	33,812	59,462
Unclassified freight..Net tons	52,731	59,738	45,377
Passengers....Number	820	930	932

SUMMARY.

	To June 1, 1897.	To June 1, 1896.
East-bound freight of all kinds, net tons	1,731,559	2,188,265
West-bound freight of all kinds, net tons	473,396	558,560
	2,204,955	2,746,825

Total number of vessel passages to June 1, 1897, was 2,249 and the registered tonnage 2,238,927.

The new steel tug now being built by the Union Dry Dock Co. of Buffalo for the Erie Tug Line is to be equipped with a set of special duplex fire pumps of 1,300 gallons capacity. A duplicate outfit is being constructed for the tug W. L. Scott, also of Erie. The tug line has contracted with the city for the furnishing of fire protection in the harbor. Thos. Manning, Jr., & Co. of Cleveland will supply the pumping machinery.

An artistic brochure entitled "Summer Outings" is published by the Nickel Plate road, describing vacation resorts along that line. Address B. F. Horner, general passenger agent, Cleveland, O., for a copy. 55 Jul 15

Long List of Appropriations for the Lakes.

On the first of the coming month another big batch of appropriations for river and harbor improvements, light-houses, gas buoys, new hydrographic offices, surveys, etc., on the lakes, will be available. The present congress has dallied for three months with the sundry civil bill, which was turned down by the last administration, and which it was thought would be passed during the first month of the special session, but the bill is now a law, and the delay has at least resulted in some good, as appropriations are increased in some cases. This law authorizes the establishment of branch hydrographic offices at Duluth, Sault Ste. Marie and Buffalo, for which $15,000 is appropriated. It also appropriates $200,000 for the completion of the two lake revenue cutters building at the ship yard of the Globe Iron Works Co., Cleveland. Other appropriations for the lakes are as follows:

Aids to navigation—Gas buoys for several points on the lakes and connecting rivers, $25,000; small light-vessel and two float lights to mark new channel at Ballard's reef, $1,500; additional light on shore at Grand Marais harbor of refuge, Lake Superior, $2,000, to be taken from unexpended part of $15,000 remaining after construction of light and fog signal station at that point; for completing Chequamegon point light and fog signal station, $1,500; gas buoys in St. Lawrence river at Charity shoals, Feather Bed shoals, Rock island point, near Sister island light, at Sunken Rock, at Bay state shoals, at Lower Narrows and at entrance to upper harbor, Ogdensburg, $7,600.

River and harbor itmes—Completing 20-foot channel, $1,090,000; continuing improvement at Buffalo, $481,250; completing improvement at Dunkirk, $398,258; continuing improvement at Cleveland, $350,000; completing harbor of refuge at Milwaukee, $168,737.91; Duluth and Superior harbors, continuing improvement, $437,500; continuing Chicago improvement, including widening and straigthening of the river, $113,000; continuing improvement of Portage lake canals and other parts of waterway across Keweenaw point, $350,000; for surveys and examinations of deep water routes from the lakes to the Atlantic seaboard, as recommended by the Deep Waterways Commission, $150,000; printing and issuing lake charts and electrotyping plates for charts, $2,000; for surveys, additions to and corrections of plates for lake charts, $25,000. There is also in the bill an item of $2,000 for the improvement of the marine hospital grounds at Cleveland, and a clause directing the secretary of the war to cause to be made a survey and estimate of cost of deepening and widening the straight channel in Maumee river and bay, with a view to obtaining and permanently securing a channel of a uniform width of 400 feet and 20 feet deep at low water, the cost of said survey to be paid out of the money already appropriated for the improvement of said channel.

Warning and Reporting Violators of Sault River Rules.

Officers of the revenue cutter service in charge of the Sault river patrol reported five vessels during May for a second violation of speed rules. The vessels are the Mariska, Athabasca, Kearsarge, Spokane and North Star. For violation of the navigation laws the steamers S. S. Wilhelm, Sitka, John M. Nicol, City of Venice, Cormorant and Spokane were reported. A long list of vessels were warned for violation of the river regulations, and will be reported upon second offense. These are the Adrew Carnegie, Northern Queen, Northern King, Mohawk, E. A. Shores, Queen City, Colgate Hoyt, Codorus, Rosemont, Siberia, Nimick, Stafford, Maruba, Manitoba, E. W. Oglebay, Jay Gould, Minnie M., Frontenac, Peerless, Penobscot, United Empire, Wm. Chisholm, W. H. Gratwick, Iosco, Merida, Mahoning, J. B. Trevor, Bannockburn, Monarch, Lizzie Madden, Robert Fulton, Thos. H. Stimson and North Wave.

The Canadian steamer Arabian, which was charged with violating the rules last season, was seized when she arrived at the Sault, a few days ago, and paid a fine of $200 under protest.

"It's a wonder Corrigan didn't have her wait and take the fall crop too," said an old-time vessel owner in Cleveland, Tuesday, when it was announced that the new steel schooner Amazon had loaded 217,000 bushels of corn on a draft of 16 feet 6 inches.

Several hundred photograph negatives of lake ships are held in stock by the Marine Review. Prints can be made on short order.

Brown Car Dumping Machine.

Several types of car dumping machines in use at Lake Erie ports have been described in the Review. These machines are used for transferring coal from railroad cars to the holds of vessels. They lift the cars bodily and discharge their contents by dumping them over. Some time ago the Brown Hoisting & Conveying Machine Co. of Cleveland began the construction of machines of this kind and they now have five of them in operation at Toledo, Huron, Cleveland and Ashtabula.

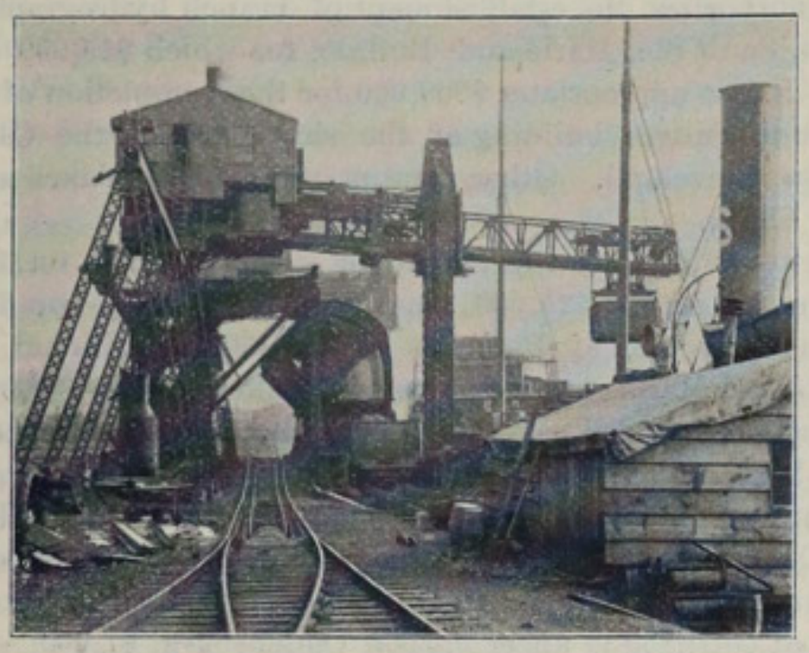


FIG. 1.—CAR IN DUMPING POSITION.

The Brown company's machine is probably the most elaborate and costly apparatus of its kind as yet constructed. Numerous changes and alterations have been made in it, as in all new machinery, and on this account the manufacturers have not as yet authorized the publication of a description of it. The Railway Review of Chicago managed, however, to secure photographs of the machine on the dock of the Cleveland & Pittsburg Railroad at Cleveland, and we are indebted to the publishers of that journal for the accompanying engravings.

The plant consists of three independent parts, one being used for dumping the contents of the car into a series of buckets and the other two for transferring the buckets to the hold of the vessel, dumping them and returning them to be refilled. The cars to be unloaded are placed by a switch engine at the head of an incline which leads to the machine. The cars are started down this incline by the use of a pinch bar, and run by gravity beyond the switch shown in the foreground of Fig. 1. They are then propelled by a small push car shown in a pocket between the rails in Fig. 1. This car is driven by means of a cable and winding drum and by it the loaded car is pushed onto the machine in the position shown in Figs. 2 and 3. The car is then

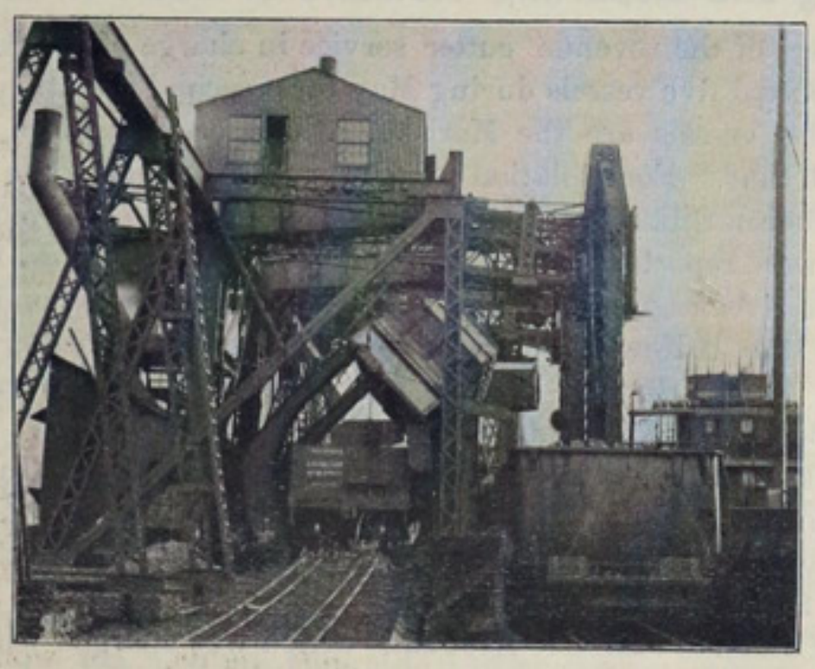


FIG. 2.—CAR READY FOR DUMPING.

firmly clamped and by means of hoisting cables carried to the position shown in Fig. 1, when its contents are discharged into a series of six buckets. There are eighteen of these buckets and they are divided into three sets of six buckets each, each set resting on a small six-wheel car. These are carried on a short track and shifted by means of a cable and winding engine to and from a point in front of the dumping machine. The dumping machine carries a set of six pockets, and as the buckets stand in front of the machine each pocket is in line with a bucket. When the machine is inverted to the position shown in Fig. 1, each pocket extends nearly to the bottom of a bucket. As the machine is returned to its normal position, the bottoms of the pockets are thrown open and withdrawn from the coal as it rests in the bucket. Fig. 2 shows the general appearance of the buckets, the car on which they rest and the guides which bring them to their proper position on the car.

The machines for transferring the coal from the buckets to the hold of the vessel are two in number, being duplicates but entirely independent in their operation. Each of these consists of a traveling crane, one leg of which rests on a track between the buckets and the vessel, the other end being carried by a trestle, shown in all three of the illustrations. The cranes each carry a hoist especially designed for picking up the buckets. The buckets are hoisted one at a time as is shown in the illustrations, the first movement being to bring them to the position indicated in Fig. 3. The second operation is to propel the crane along the track until the bucket is brought into line with the hatch, into which it is to be discharged. The next operation is to carry it to the extreme position shown in Fig. 1, which is accomplished by means of a telescopic girder which forms a portion of the crane. The bucket is next lowered to the hold of the vessel, the bottom unlatched and the bucket drawn from around the coal.

It will be seen from this description that the coal is not subjected to a fall at any stage of the transfer. In passing from the car to the bucket it rolls down from the side of the car gradually into the pockets, and as the latter extend to the bottom of the buckets there is no fall in the transfer. In discharging from the buckets into the hold of the vessel the same holds true. Another great advantage claimed for

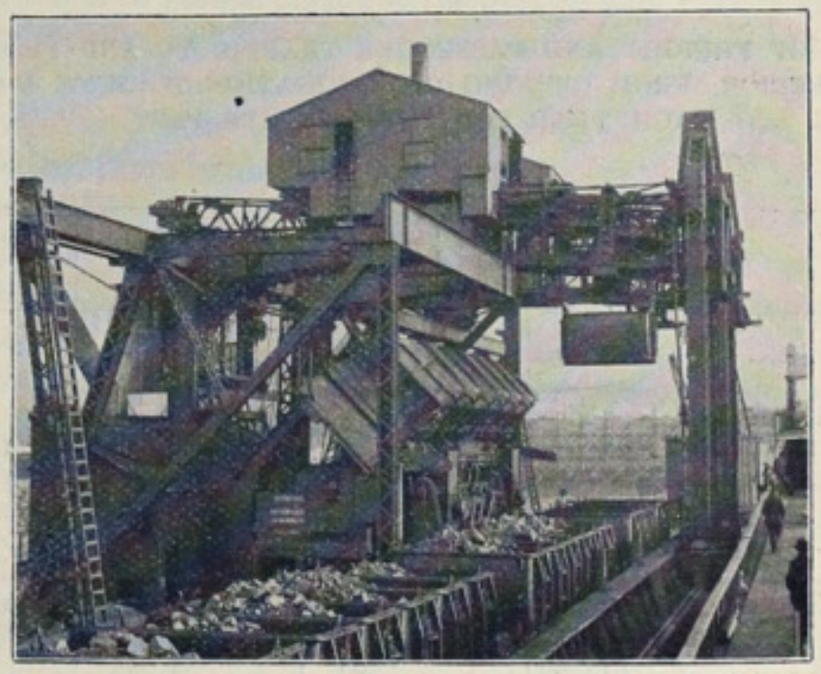


FIG. 3.—BUCKETS LOADED READY FOR CRANE.

this machine is that a vessel loaded by it requires very little trimming, as the coal is discharged in a perpendicular line and distributes itself naturally and evenly over the hold. On large vessels the buckets can be carried to either side of the hold in order to aid in trimming. The machine was designed by Mr. Alex. Brown. It is operated almost exclusively by hoisting drums and cables, and the ingenious manner in which they are applied to the work is extremely interesting.

It is expected that the Detroit Dry Dock Co. will make a record in rebuilding the beam engines of the side-wheel steamer State of Ohio, although the work is practically equal to the construction of machinery entirely new. Since the Ohio was taken to Detroit it has been found that she made a complete wreck of her engines. The connecting rod let go first with the piston on the down stroke, breaking beam skeleton, beam pillow block, crosshead, cylinder and cylinder bottom, condenser, air pump, hot well and bed plate. The crank pin was bent and one crank twisted around on the shaft. There was also some slight damage to the keelsons, due to the lower half of the connecting rod thrashing around from momentum of the wheels.

A Davidson tow of wooden vessels that passed up the Sault river a few days ago had a combined capacity of about 11,000 tons. The vessels were the steamer Rappahannock and schooners Paisley, Algeria, Grampian and Lizzie A. Law. They made the run from Port Huron to the Sault in forty-three hours.

Niagara Falls excursion via the Nickel Plate road, Saturday night, June 19, at 10:30 oclock. $3.50 for the round trip. Sleeping car attached.
108 June 17

Of Interest to Vessel Masters.

Officers of the Lake Carriers' Association who have succeeded in impressing the United States light-house board with the value of gas buoys on the lakes, are expecting that within the next two months they will have ten to fifteen more buoys of this kind than are now on the lakes. This is in addition to the larger number that will be provided later on by the special appropriation of $25,000 contained in the sundry civil appropriation bill. It is more than probable that the next installment of the buoys, three or four in number, will go to the Sault river. Capt. Walsh of the steamer Corsica says of the two buoys in Poverty passage, Green Bay: "I have seen these lights at a distance of ten miles on a clear night, and I have picked them up at a similar distance in the morning, just before daybreak. The buoy on Ballard's reef and Lansing shoal are equally valuable." Arrangements have been made so that there will be no question this season as to the care of the Canadian buoys in Pelee passage, Lake Erie, which were put out on Saturday last. They are exactly in the positions which they occupied last season.

Vessel masters are taking unusual interest in the system of reports regarding misplaced aids to navigation, obstructions, etc., instituted by Geo. L .McCurdy of Chicago as a representative of the insurance companies, and Mr. McCurdy is giving personal attention to the correspondence. Capt. J. F. Vaughn of the steamer Northern Queen wrote a few days ago suggesting, as had already been suggested by another master, that a white and red light, one above the other, be placed on the lower cluster of piles at the point of turning out of the Detroit river into the new cut in Lake St. Clair. Mr. McCurdy's answer was as follows: "I will convey at once to the proper officer of the government (light-house inspector at Detroit) your suggestion, recommending that the change be made. It is quite possible, of course, that there may be something that would make such a change impracticable, but we can at least inform the officer in charge of the views of yourself and others regarding this matter. I am pleased to advise you that in response to my invitation I have heard from many of the masters of lake ships, noting the absence of some of the guides to navigation and the necessity for others in unmarked places. The response has in fact been of a kind that must result advantageously to everybody concerned. I will esteem it a special favor if, when you have the opportunity, in conversing with your brother masters, you will enlarge upon this topic with them and point out to those who fail to understand the scope of this work what it means to them, so that the cooperation may be general, as by all working together we can certainly make lake navigation more safe than it is at present."

The chief of the hydrographic office, Commander J. E. Craig, U. S. N., Washington, D. C., has informed Mr. McCurdy that the branch offices of the service on the lakes will take up all information that he may receive and assist in giving publicity to it, both by correcting charts and by publishing the reports in the "Notices to Mariners."

It is understood that all ore-handling machinery on the big new docks for the Carnegie railway at Conneaut will be supplied by the Brown Hoisting & Conveying Machine Co. This is a very large contract, as it involves the erection of ore hoists that are expected to unload two 5,000-ton ore carriers daily. The Brown company is now putting up three extra legs for unloading ore on the old plant at Conneaut. These machines are to be completed in about a month. August 15 is still spoken of as the date for completion of the new ore docks at Conneaut, but it hardly seems possible, from present indications, to have the work finished at that time. It is also claimed that the Pittsburg, Bessemer & Lake Erie Railroad will be completed in August.

Another gunboat, the Princeton, was launched a few days ago, at the ship yard of John Dialogue & Son, Camden, N. J. The Princeton is a composite gunboat. She is 168 feet on the water line and 204 feet over all, with a beam of 36 feet and a depth of 22 feet 6 inches. She is built of teak and pine, with steel frames, and is especially adapted to service in shallow water, having a mean draught of 12 feet. Her contract price was $230,000, and the guaranteed speed is to be 12 knots an hour. This vessel is supplied with a complete outfit of pumps of the Blake special vertical marine type.

Commander E. H. C. Leutze is the inspector of the ninth light-house district, with headquarters at Chicago, who recently succeeded Commander Dayton.

Great Gathering of Naval Engineers at London.

Probably thirty-five representatives of the ship building industry in the United States will attend the International Congress of Naval Architects and Marine Engineers, to be held in London next month. All arrangements for the congress are under the direction of the Institution of Naval Architects of Great Britain, and the program is of a most elaborate kind. Among members of the Society of Naval Architects and Marine Engineers in this country who will attend are Chas. W. Pusey, J. F. Van Vleck, W. Louis Sonntag, Jr., W. F. Moore, D. G. Moore, R. J. Hawes, W. H. Shock, Jos. R. Oldham, Chas. Ward, H. E. Rottmer, I. E. Thayer, W. W. Bates, W. H. C. Swenson,J. J. O'Neill, David Joy, T. G. Roberts, Berrier Fontaine, L. E. Bertin., W. I. Babcock, D. W. Taylor and W. M. McFarland. Gen. T. W. Hyde of the Bath Iron Works and President N. G. Morse of the Harlan & Hollingsworth Co. are now in England and will very probably remain over for the congress.

The guests will include numerous friends of the institution from France and Germany, who have, within the past two or three years, entertained the British society in Paris, Berlin, Hamburg and Stettin, as well as ministries of marine of all of the principal naval powers of Europe and America. The programme thus far outlined is as follows: On Monday, July 5, a conversazione will be held at the Hotel Cecil. On the Tuesday, at 11 a. m., there will be a reception of foreign delegates by the president of the congress at the Imperial Institute; at 11:30 the Prince of Wales will deliver a speech of welcome, and the Earl of Hopetoun will give his inaugural address and papers will be read and discussed; at 9 p. m. the Lord Mayor of London will hold a reception at the Mansion House. On Wednesday morning papers will be read and discussed, and at 7 p. m. a great dinner is to be given at the Holborn Restaurant. On Thursday morning there will be excursions by steamers from Westminster Stairs to the Tower bridge and London docks; luncheon will be served at the Royal Albert docks; and at 8:30 p. m. a great festival concert will be given at the Queen's hall, Langham-place, followed by a supper, also at Queen's hall. On Friday a special train will convey the delegates to Southampton, whence they will proceed by steamer to Portsmouth dock yard, and afterwards return to London by special train. At 9:30 p. m. the Hon. T. A. Brassey and Lady Idina Brassey will hold a reception. Saturday, July10, will be reserved for pleasure excursions. For the following week the foreign guests are invited to visit the works of the Fairfield Ship Building Co.; of Wm. Denny & Bros.; of Sir W. G. Armstrong, Whitworth & Co; and of Palmers Ship Building Co.

To Overcome Danger at the Encampment.

Since the opening of navigation vessel masters have claimed repeatedly that unless something is done so that vessels making the new cut at Sailors' Encampment, Sault river, will know of the approach of anything that may be coming in the opposite direction, there will be a serious accident in that vicinity before long. Commander Folger, who is in charge of the light-house affairs in the river, has been appealed to, and it is understood that he has decided to recommend to the government that measures be taken to remove all trees on the island in the vicinity of Johnson's point. The island is heavily wooded in and around the district known as the Encampment, and this is the main cause of danger to navigation. It is expected that if the trees can be removed there will be less difficulty in making the bend.

Not long ago Commander Folger suggestd that it might be well to change the ranges at the mouth of the Sault river—Frying Pan and Pipe islands—to bright white instead of red lights, and asked for the opinion of vessel masters on the subject. Capt. E. T. Rattray of the steamer Joliet, who is trading regularly to Marquette and passing through the Sault river three times a week, says that a mistake may be made in changing the color of these lights. If white lights are used there is danger of the light on Pickands, Mather & Co.'s coal dock being mistaken for one of the range lights. He would be pleased to see stronger lights at this point if it was possible to have them without the danger to which he refers.

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MARINE REVIEW

DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 409 Perry-Payne building, Cleveland, Ohio, by John M. Mulrooney and F. M. Barton.

SUBSCRIPTION—$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, $1.00. Advertising rates on application.

Entered at Cleveland Post Office as Second class Mail Matter.

The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,034.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

	Number.	Gross Tonnage.
Steam vessels	1,792	924,630.51
Sailing vessels and barges	1,125	354,327.60
Canal boats	416	45,109.47
Total	3,333	1,324,067.58

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30. 1891	204	111,856 45
" " " 1892	169	45,968.98
" " " 1893	175	99,271.24
" " " 1894	106	41,984.61
" " " 1895	93	36,352.70
" " " 1896	117	108,782.38
Total	864	444,216.36

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (*From Official Reports of Canal Officers.*)

	St. Mary's Falls Canals.			Suez Canal.		
	1896*	1895*	1894	1896	1895	1894
Number of vessel passages	18,615	17,956	14,491	3,409	3,434	3,352
Tonnage, net registered	17,219,418	16,806,781	13,110,366	8,560,284	8,448,383	8,039,175
Days of navigation	232	231	234	365	365	365

*1895 and 1896 figures include traffic of Canadian canal at Sault Ste. Marie.

Although only the first signs of improvement in business conditions have appeared on the lakes it is quite evident from the tone of reports covering the iron industry in different parts of the country that long heads in the trade are hedging against a possible substantial advance all along the line within the next few months. Large western consumers of iron and steel are evidently of the opinion that this is a good time to buy. The Iron Age in its latest review of the market says: "Very heavy contracts have been placed within the past two or three weeks for all kinds of material. Pig iron has been purchased for delivery far into next year, and contracts on more finished products have been made which will run nearly as long. The very low prices now ruling have caused some heavy consumers to depart from their custom of buying at frequent intervals, into which they fell when values steadily declined for a long period, and their contracts have helped considerably to swell the aggregate of recent transactions. It is also noteworthy that manufacturing consumers who are not in immediate need of material have purchased large lots for early delivery, being induced by special rates made for prompt cash. The necessities of producers are demonstrated by these contracts. Notwithstanding the very low rates made, which are certainly as low as and probably lower than anything previously known in the same lines of trade, the sellers have been forced to agree to buyers' terms and extend deliveries far into the future. It must not be inferred from this that the producers are of the opinion that prices are permanently on the level now ruling. These prices are ruinously low, and if they were to continue for any length of time readjustments would be necessary in various items of cost and particularly in labor and freight rates on raw materials. But existing conditions had to be met heroically, in the hope that the business thus taken would make a basis for future operations upon which could be built a better structure formed of smaller sales at more satisfactory prices. The buyers have their opportunity now, and those in position to take advantage of it are wisely arranging for cheap supplies for a long time to come."

A short time ago, the mayor of Virginia, Minn., wrote to Andrew Carnegie and John D. Rockefeller telling them of suffering among miners of the town and their families on account of large numbers of men being out of employment. Virginia is one of the towns in which the Rockefeller-Carnegie combination is interested in mines. As far as can be learned, no response was received from Mr. Rockefeller, but Mr. Carnegie sent a check for $1,000. Accompanying the check was the following note from Mr. Carnegie's secretary: "I take pleasure in handing you the enclosed voucher and check for $1,000 in response to your request. Mr. Carnegie wishes me to say that he is very sorry to hear of the distress in your town. He has for years predicted this depression as the consequence of the agitation to lower the standard of value, and he believes there is no cause for the trouble other than the 'silver question.'" Now the papers all through the mining region are heaping more abuse upon Mr. Carnegie than if he had entirely ignored the request, declaring that the combination in which he is interested is the sole cause of the trouble. There is no doubt of a very bitter feeling existing against both Mr. Carnegie and Mr. Rockefeller, the latter especially, in vessel owning circles as well as in the iron mining districts. The feeling against Mr. Rockefeller among some vessel owners is full as bitter as that which existed in the oil districts of Pennsylvania a few years ago. It is certain, however, that there is nothing to be gained by most of the newspaper articles that have appeared within the past few weeks. They fall flat on account of gross misstatements. A line of argument backed up by a proper regard for facts might have a different effect.

A clause in the new tariff bill is worthy of special attention from the shipping interests of the country. Under its provisions, if enacted as drafted, a duty of 35 per cent. will be imposed on all foreign vessels wrecked in American waters and sold here, before they can be admitted to American registry, this in addition to the required expenditure of 75 per cent. of the total value of the ship for repairs in an American yard.

A copy of the 1896 report of the Buffalo Merchant's Exchange is at hand. This report, which is prepared by Mr. Wm. Thurston, secretary of the exchange, contains each year a great deal of matter that is of special value to any one interested in lake commerce. Mr. Thurston has occupied his present office since the organization of the first business association in Buffalo, the old board of trade, thirty-three years ago.

It is gratifying to note that officials of the light-house board have of late given special attention to the needs of lake navigation. The naval secretary of the board, Commander Geo. F. F. Wilde, is about to make a hurried tour of the lakes, and it is expected that Capt. Schley, chairman of the board, will make a trip from Buffalo to Duluth and return during July.

"The Military Value of the Ship Yard" is the title of an able and interesting article by Lewis Nixon, the well-known ship builder of Elizbeth, N. J., in the North American Review for June.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes, June 5, 1897:

	Wheat, bushels.	Corn, bushels.
Chicago	5,011,000	6,819,000
Duluth	2,608,000	8,000
Milwaukee	155,000	3,000
Detroit	33,000	14,000
Toledo	581,000	261,000
Buffalo	879,000	426,000
	9,267,000	7,531,000

As compared with a week ago, the above figures show, at the several points named, a decrease of 908,000 bushels of wheat and an increase of 1,182,000 bushels of corn.

A small circular representing excellent taste in color printing has just been received from the Peerless Rubber M'nfg. Co., 16 Warren street, New York. It is descriptive of the chief specialties of the company—Rainbow, Honest John, Hercules and Peerless packings, and Eclipse Sectional Rainbow gaskets.

Luce's "Seamanship" is a book that is specially suited to assist young officers of the naval reserve. It is being used by naval reserve organizations all over the country. It is a standard work, selling at $10, and will be mailed to any address at that figure by the Marine Review, 409 Perry-Payne building, Cleveland.

Capt. Francis Martin.

Capt. Francis Martin, a pioneer of the United States revenue cutter service, who sailed the lake cutter John Sherman in her best days, but who has for some time past been living in retirement at Detroit, is now in his ninety-eighth year. He observed the ninety-seventh anniversary of his birth on June 3, by receiving informally relatives and friends at his home, No. 159 First street, Detroit. Capt. Martin is an extremely well-preserved man at ninety-seven, and does not look over seventy or seventy-five. He weighs nearly 180 pounds and goes out walking two or three times a day when the weather is good. He is a great reader of books, magazines and newspapers. Capt. Martin was present at Napoleon Bonaparte's funeral, May 5, 1821. It was a mere coincidence his being there. He was second mate on a sailing vessel which put in at St. Helena for water. He joined the group assembled at the spot which Napoleon had selected for his grave. It was under the shadow of a willow and the young mariner was deeply affected by the services. The firing of cannon was incessant and many soldiers were in attendance. Upon the general's bier was the military cloak he had worn at Marengo. Capt. Martin is emphatic in the belief that Napoleon's death was hastened by the treatment he received at the hands of the British officers on the island.

Practical Value of Retarders.

In view of the saving of fuel that is constantly being reported on account of the use of retarders in boiler tubes, it would seem that most lake engineers have been a little slow in appreciating the value of that device. A late report on this subject from an engineer on the Pacific coast, Wm. P. Lindley of the steamer President, is printed in the Engineer of New York. On a trip between San Francisco and one of the small ports in Alaska last season, this vessel made 2,469 wheel-miles on the run under the following conditions: 155 pounds, H. P.; 40 pounds, I. P.: 5 pounds, L. P.; vacuum, 24 inches; feed, 131°; daily coal consumption, 7.64 tons; coal consumption, full run, 65 tons. On her first trip this season with retarders in tubes she made 2,499 wheel-miles, with pressures and feed temperature the same. The daily average of coal was 6.7 tons, or 57 tons for the trip, thus showing a saving of 8 tons. The coal was identical in quality, being from the same mine, and two of the old firemen were on this voyage, only one new man being at the fires. The cost of retarders was $32. The stack is 50 inches in diameter, and 48 feet from grate to top. There are two furnaces of 42 inches diameter and 6 feet 6 inches length. Tubes are of 3½ inches diameter and number 160. The draft is very strong. It is necessary with retarders, this engineer says, to keep tubes clear of soot. He caused the tubes to be cleaned every twenty-eight hours.

Politicians at Sault Ste. Marie are trying to bring about the removal of Superintendent MacKenzie, who is in charge of the canal force, and who was assured, a short time ago, upon the request of vessel owners and masters, that he would be retained. This assurance came indirectly from Gen. Alger of the war department through senators who are personally interested in lake commerce, so that there is little probability of a few disappointed politicians having influence enough to disturb the present satisfactory service at the canal locks. Almost the entire force at the Sault are under civil service rules and any attempt to make changes in such employes as are under the civil service regulations should be strenuously opposed by the vessel interests.

The Marine Review has prepared in neat oak frames cards containing the schedule of time required to be run between certain points in the St. Mary's river under the speed limit of seven miles an hour. When hung in a pilot house, distance and time may be readily noted from these cards, as the type is large. They will be sent by express to any address at $1 each, or may be had upon application at 409 Perry-Payne building, Cleveland, for 65 cents each.

Toledo Straight Channel Regulations.

As in the case of the Portage Lake canals, St. Clair Flats canal and other waterways on which big sums of money have been expended for improvements, the government has issued regulations for the navigation of the straight channel through Maumee bay Lake Erie, which is best known as the Toledo straight channel. Col. Jared A. Smith, U. S. A., of Cleveland, is the custodian of this channel, but will delegate authority to a representative at Toledo. The waterway to which the regulations refer comprises the channel proper, its improved approaches at either end, and such channel banks, dikes, piling or other works as are now or may hereafter be constructed in connection therewith. The regulations, which are to go into effect July 1, are as follows:

The custodian of the channel, either by himself or through assistants, may direct the movements of all vessels, boats, rafts, and other floating things in the channel, and of all persons upon the works connected therewith. The directions, orders, and instructions given by him or his assistants to regulate the movements of any vessel, boat, raft, or other floating thing in the channel shall be obeyed by all persons in charge of or employed upon said vessel, boat, raft, or other floating thing, and by each and every person upon the works connected therewith.

"All persons in charge of or employed upon vessels or boats are forbidden to throw anything into the channel or to cause or permit their respective vessels to land at, push into, or tie up to the banks, unless on government business; to enter the channel two or more abreast; to pass another vessel or boat while going in the same direction in the channel, except as specified in the pilot rules issued by the board of supervising inspectors of steam vessels; to pass the channel in more than one line going each way; to obstruct the channel in any way, or to intentionally delay, by slow passage through the channel or by any other means, the progress of other vessels or boats navigating the same; to hug the channel banks in passing, or to deviate more from the middle of the channel than is necessary for safe navigation; to pass the channel at a rate of speed exceeding eight miles per hour.

"No one in charge of or employed on a vessel, however propelled, shall permit such vessel to pass through the channel with its sail or sails up, unless it be a sail vessel running with a fair wind in daylight. During the hours from sunset to sunrise sails shall not be hoisted on any vessel.

"No raft shall be towed through the channel without a tug at the stern of the raft to control it, so that the channel may be obstructed as little as possible.

"No tow shall enter or pass through the channel with a tow line more than 200 feet in length.

"To prevent blockades in the channel or its approaches, the custodian is authorized to detain any vessel at either end thereof until in his opinion a safe passage can be secured; and no one shall do anything that will tend to or is likely to interfere with or prohibit his doing so.

"All persons are prohibited from willfully or carelessly injuring or damaging any of the works pertaining to the channel and from tying up to any of them (except upon government business), whether it be buoys, cribs, pile work, dikes, or any other work connected with the channel.

"In case of any boat, vessel, or other craft or raft sinking or grounding in the channel or otherwise obstructing it, the officer or agent of the United States in charge of the channel shall have the right to take such possession of such vessel, boat, or other craft, or raft as shall be necessary for the purpose and remove it, and clear the channel of the obstruction caused by it, and no one shall interfere or prohibit him from doing so, or do anything that will tend to interfere with or prohibit him from doing so; provided, that the officer or agent of the United States may, in his discretion, give notice in writing to the owners of any vessel, boat, or other craft or raft, obstructing the channel as aforesaid."

Why not patronize the Nickel Plate road on your next trip to New York City or Boston. They operate solid through trains, elegantly equidped with palace sleepers, and fine day coaches attended by uniformed colored porters, whose duties require them to look out for the comfort of passengers. Magnificent dining cars. The popular low rate short line. 48 June 10

A Buffalo View of the Fuel Question.

Buffalo, June 10.—There ought in justice to be some further remark made regarding the fueling situtaion here, especially since it was proposed recently to oblige vessels dealing with the Bessemer Steamship Co. to visit one port for cargo and another for fuel. There are at least some Buffalo vessel owners who are not so very sorry about this circumstance. When the fight was made against fueling here with the shippers of hard coal it was assumed in Ohio ports that there was no shadow of abuse there; it was all in Buffalo. So the vessel owners joined together and "knocked the shippers out," partly because they recognized the abuse and partly because of the pressure from Ohio and Detroit.

It will have to be confessed that the fight was made with some misgiving, for it was on the assumption that all was lovely at other ports and would remain so. Some of the leaders in the movement have since confessed that they squirmed some over the position they were forced into, and say that they will never act again in any such one-sided and one-for-all capacity. The abuse was scotched at least, if not killed. The question now is, are Ohio vessel owners prepared to defend their rights in the same way if the threatened abuse becomes general? Buffalo would like a full statement of the fueling situation in Ohio this season. There is a partial return to the old state of things here, but in such form that vessel owners do not appear to object to it. Coal shippers do generally insist on furnishing fuel with cargoes. Here is an extreme instance, for the truth of which your correspondent is, of course, dependent on current report. When the steamer Aztec went to Lake Ontario last she left the Zapotec here. A shipper here offered the Zapotec a load of coal if the Aztec would come here and fuel with him, though she loaded at Oswego. This was agreed to. It of course occasioned considerable comment. Still there is no disposition to complain, as the price of all fuel here is the same, and the possibility of such cases as the above is very remote. It is due to competition here that all fuel is now selling at $2, and as long as no difference is made in price no complaint will be made if shippers do insist on furnishing the fuel.

Around the Lakes.

Tonnage of the steel steamer Niagara, recently launched at West Bay City, is 1,951.56 gross and 1,483.39 net.

Capt. Wm. Cary, who was for thirty-two years captain of various craft on the lakes, died at his home in Benton Harbor, Wednesday, aged seventy-eight years.

Commander Leutze, inspector of the ninth light-house district, announces that the red gas buoy in Poverty passage, Green bay, which was out of order is again lighted.

Annual meetings of the Minnesota Iron Co. and Duluth & Iron Range Ry. Co. were held in Duluth, a few days ago. Last year's officers and directors were all re-elected.

The O. S. Richardson Coal Co. is fitting up the old schooner C. C. Trowbridge with a derrick and two coal shutes and will use her in the fueling business at South Chicago.

Geo. Francombe, who was highly respected among lake engineers, died at his home in Detroit a few days ago. He had been an engineer on the lakes continuously for forty-seven years.

A survey of waters in the vicinity of the Apostle islands is to be made during the coming month by officers of the U. S. S. Michigan, and a new chart of that part of Lake Superior will be issued later on.

Barry Bros. will soon have another tug in their Chicago line.

The Rita McDonald, launched at Bay City a few days ago, was built for the Chicago firm. She is 80 feet keel, 20 feet beam and 10½ feet hold and has two engines, 16 and 22 inches, with a boiler of 7½ by 13 feet dimensions.

Saturday at 11 a. m. is the time fixed for the launch of the steel tow barge Polynesia at the ship yard of the Globe Iron Works Co., Cleveland. With the launch of this vessel there will be left on the stocks in lake ship yards only two freight vessels and there are no contracts in hand for new freighters. The vessels still on the stocks are a 400-footer, the Empire City, building at the yard of the Cleveland Ship Building Co. for A. B. Wolvin of Duluth, and a package freight steamer, which is being built by the Union Dry Dock Co. of Buffalo for the Union line.

Henry N. Botsford of Port Huron was the lowest bidder in a competition for the construction of ten life boats, for which bids were opened by the revenue cutter division of the treasury department in Washington, a few days ago. On four boats to go to Monmouth Beach, N. J., his bid was $2,285, and on six boats to be delivered at Grand Haven, Mich., his bid was $2,257. Other bidders were: James Bircher, Philadelphia; F. C. Beebe, Greenport L. I.; B. F. Wood, City Island, N. Y.; Detroit Boat Works, Detroit, Mich.; Racine Yacht & Boat Works, Racine, Wis.; Samuel Ayers & Son, Nyack, N. Y., and Charles M. Woodruff, Detroit, Mich.

Speed and Cargo Records—Lake Freight Steamers.

The schooner Amazon has just loaded 217,000 bushels of corn at Chicago and the steamer Crescent City has delivered at Cleveland a cargo of 5,548 net tons of ore from Lake Superior. Changes are made accordingly in the following records:

Iron Ore—Coralia, Mutual Transportation Co. of Cleveland, 5,088 gross or 5,699 net tons, Gladstone to Ashtabula, draft of 16 feet 10 inches. From Lake Superior—Steamer Crescent City, A. B. Wolvin of Duluth, 4,954 gross or 5,548 net tons, Two Harbors to Cleveland.

Grain—Schooner Amazon, James Corrigan of Cleveland, 217,000 bushels of corn, equal to 6,076 net tons, Chicago to Buffalo, 16 feet 6 inches draft. From Lake Superior--Steamer Andrew Carnegie, Wilson Transit Co. of Cleveland, 171,000 bushels of oats, 51,000 bushels of wheat and 55,000 bushels of barley, equal to 5,586 net tons, Duluth to Buffalo, 16 feet 1½ inches draft; steamer Crescent City, A. B. Wolvin of Duluth, 318,000 bushels of oats, equal to 5,088 net tons, Duluth to Buffalo.

Coal—Schooner Aurania, John Corrigan of Cleveland, 5,187 net tons bituminous, Toledo to Milwaukee; steamer Andrew Carnegie, Wilson Transit Co. of Cleveland, 4,997 net tons of bituminous, Cleveland to Sheboygan, draft of 15 feet 2 inches.

Speed—Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Centurion, Hopkins Steamship Co. of St. Clair, Mich. Buffalo to Duluth, 997 miles, 65 hours and 10 minutes, 15.3 miles an hour.

UNITED STATES ENGINEER OFFICE, Detroit, Mich., May 23, 1897. VESSEL OWNERS AND MASTERS are cautioned against passing at HIGH SPEED through the improved 20-FOOT CHANNEL IN LAKE ST. CLAIR, as such speed threatens the durability of the improvement and the safety of navigation. It is hoped that this caution may induce owners and masters to co-operate in so reducing speed through this channel that the promulgation of restrictive regulations may not become necessary.

By order of the SECRETARY OF WAR.
G. J. LYDECKER, Lt. Col., Corps of Eng'rs, U. S. A.
July 1

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PROPOSALS FOR STEAM TENDERS, MISsissippi River Commission, 2732 Pine Street, St. Louis, Mo., May 25, 1897. Sealed proposals, in triplicate, for construction of three stern-wheel Steam Tenders will be received here until 12 o'clock noon, standard time, June 24, 1897, and then publicly opened. Information furnished on application. H E. WATERMAN, Capt. Engineers, Sec'y, June 18

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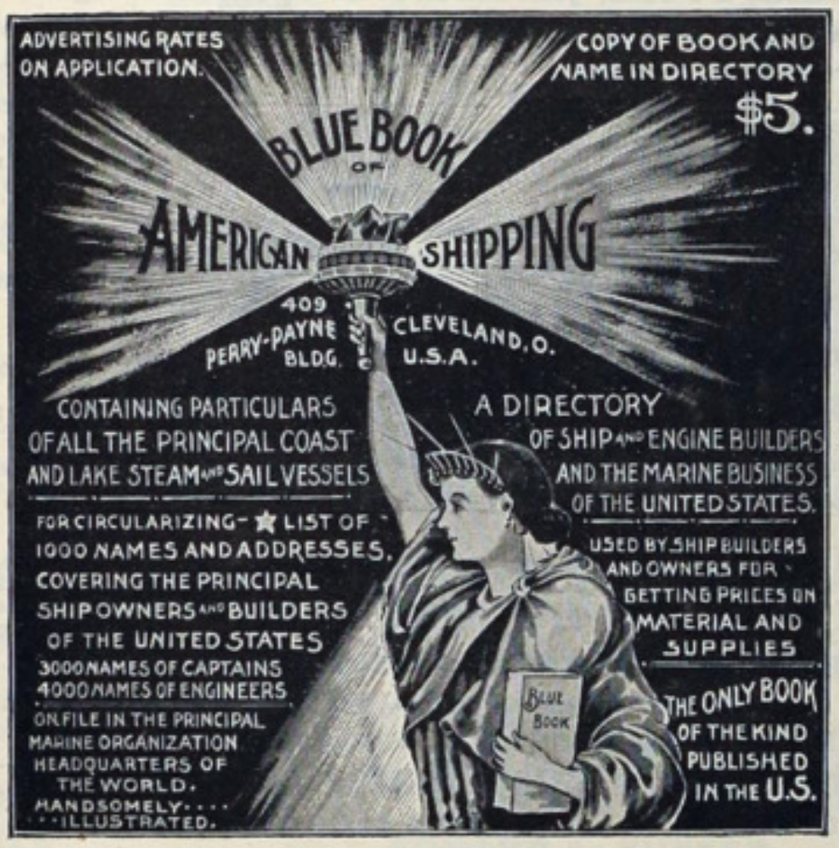
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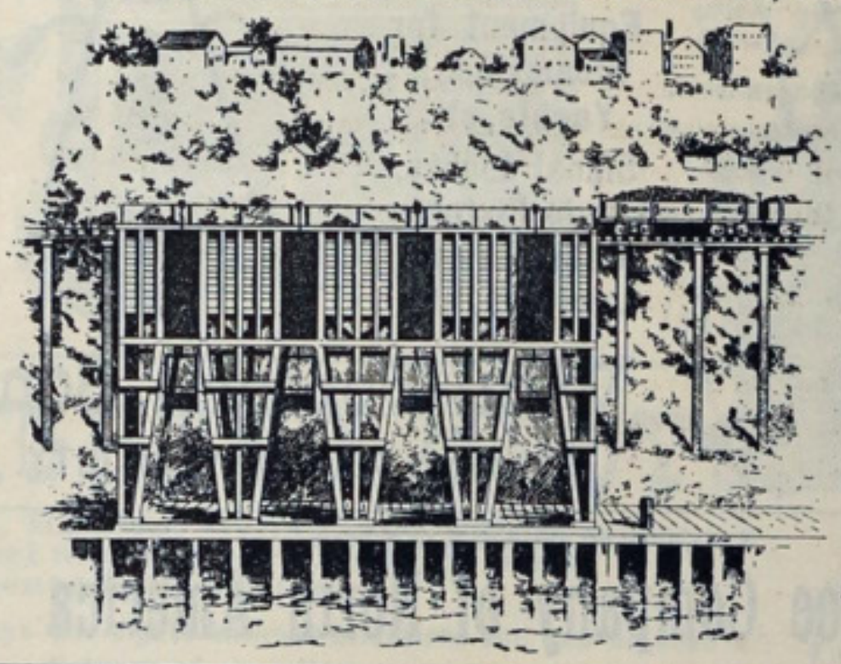

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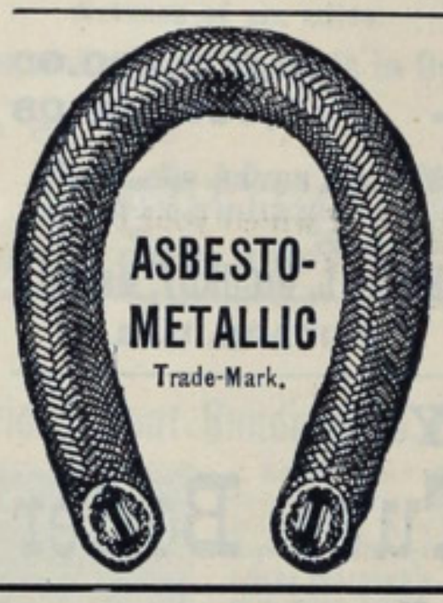

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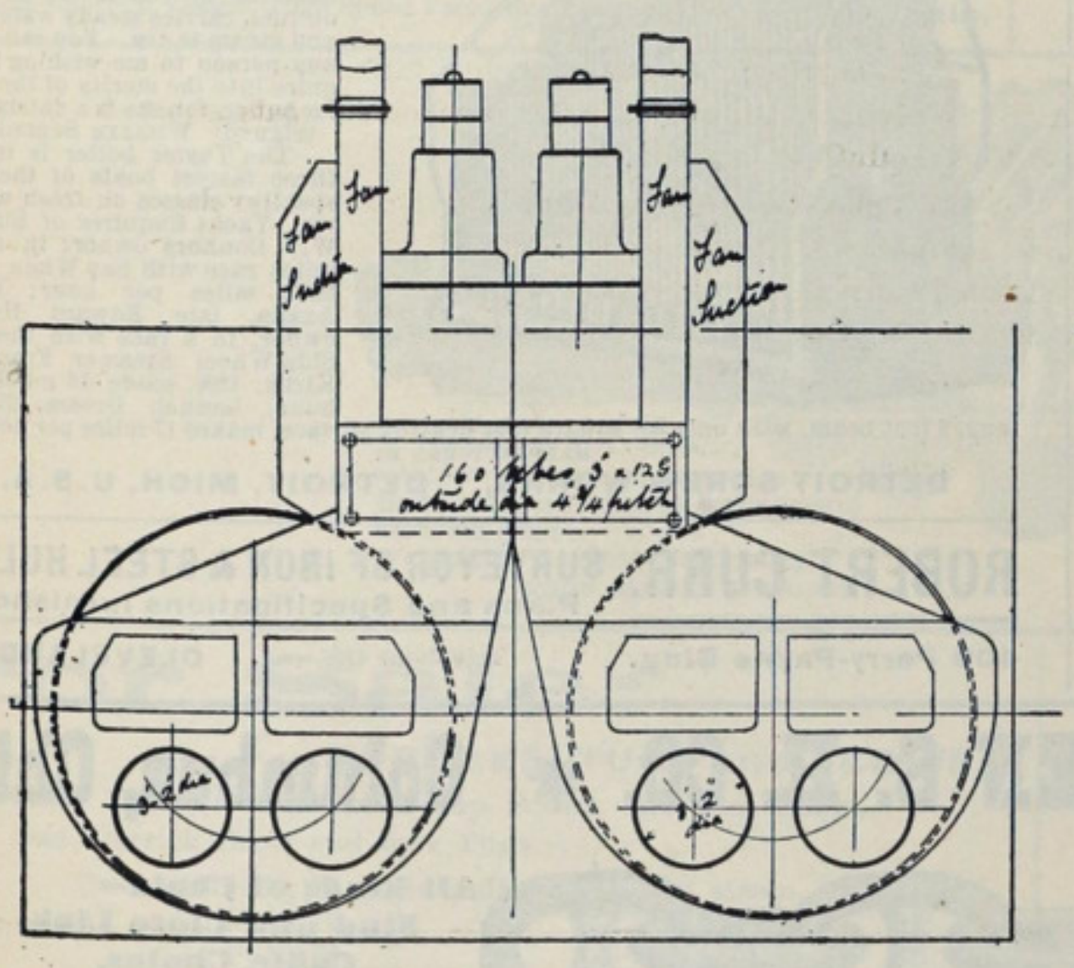

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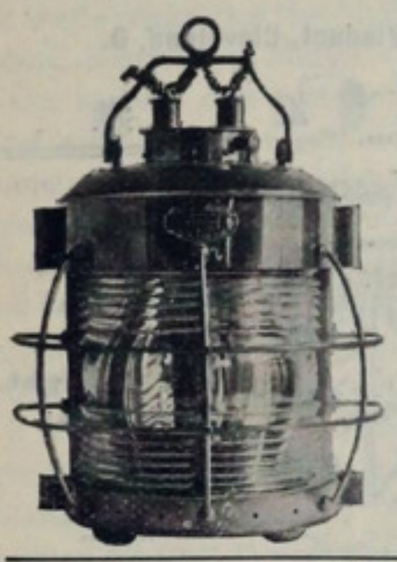

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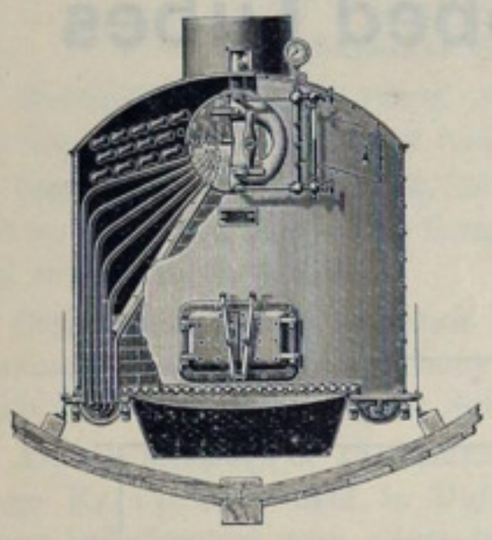

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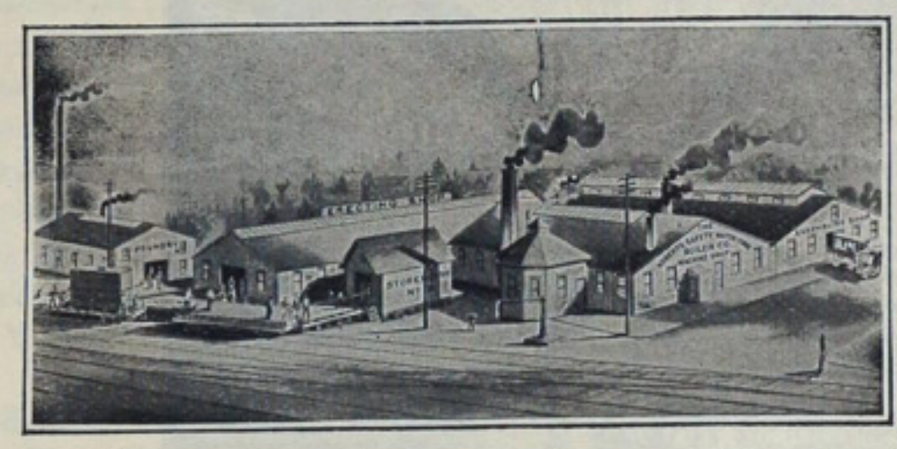

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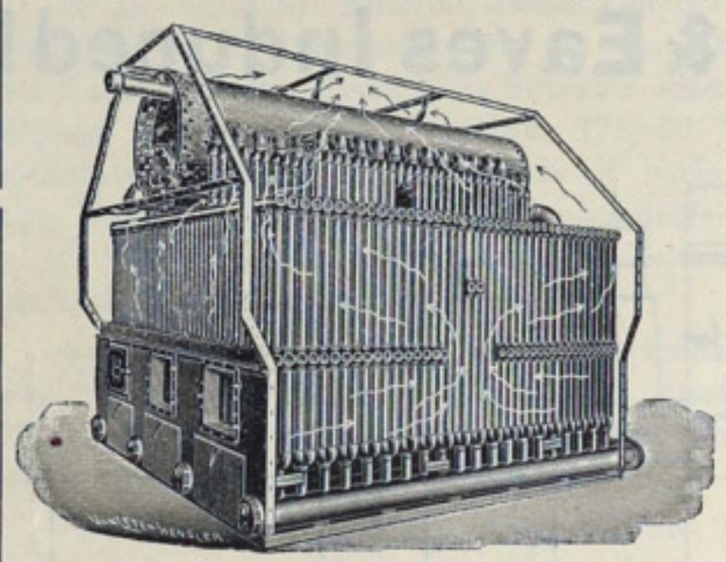

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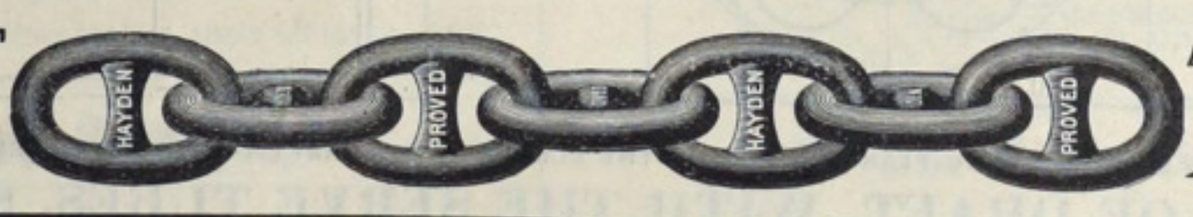

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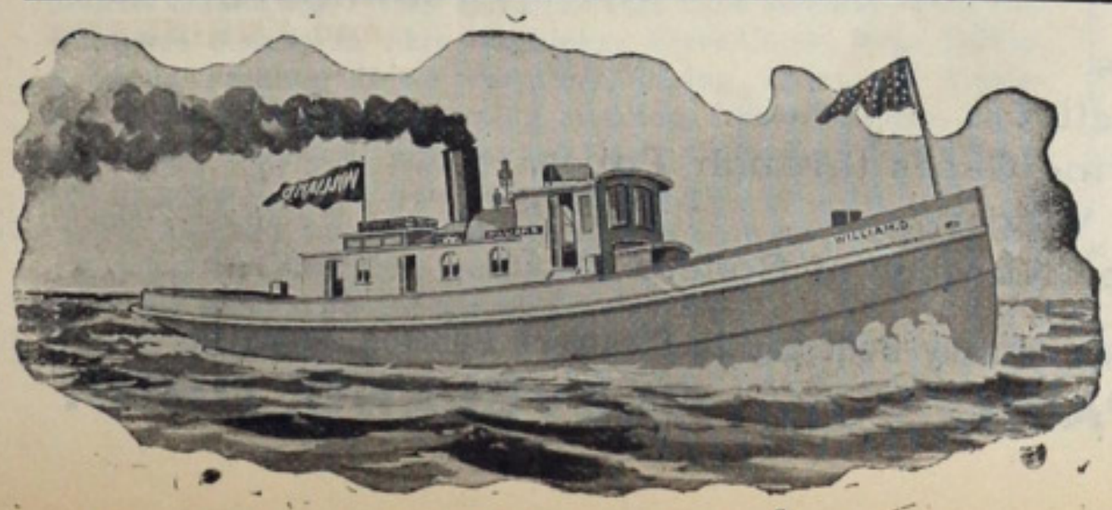

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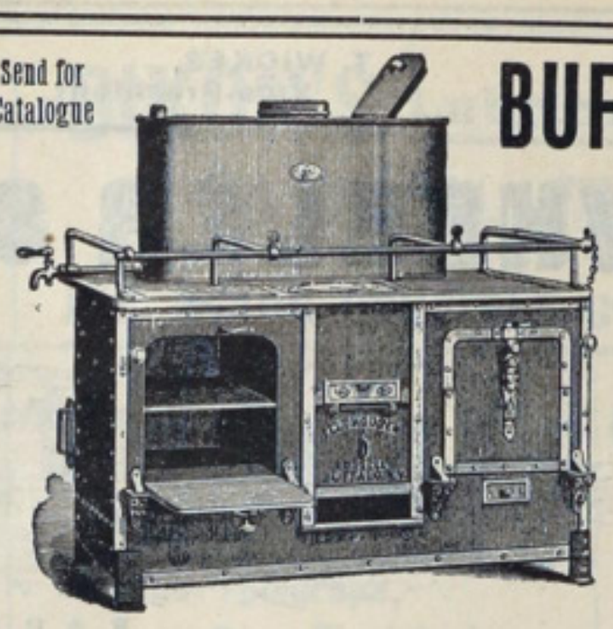

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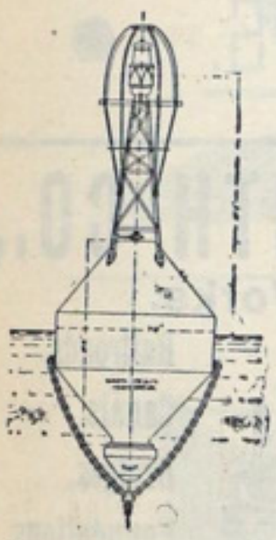

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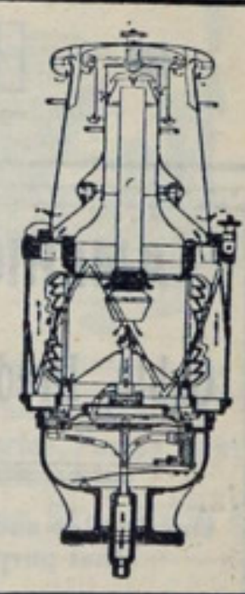

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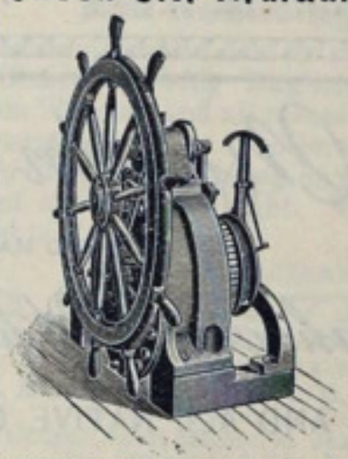

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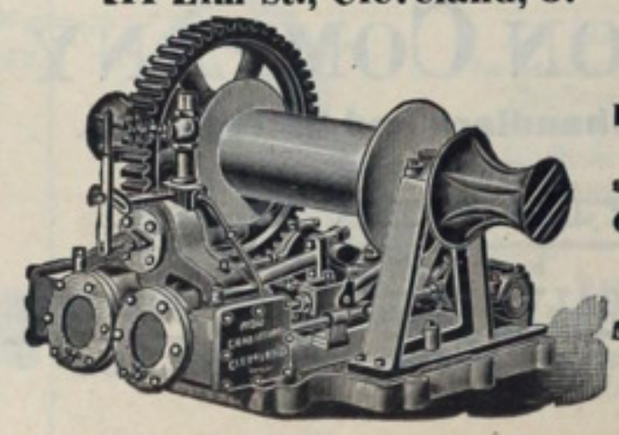

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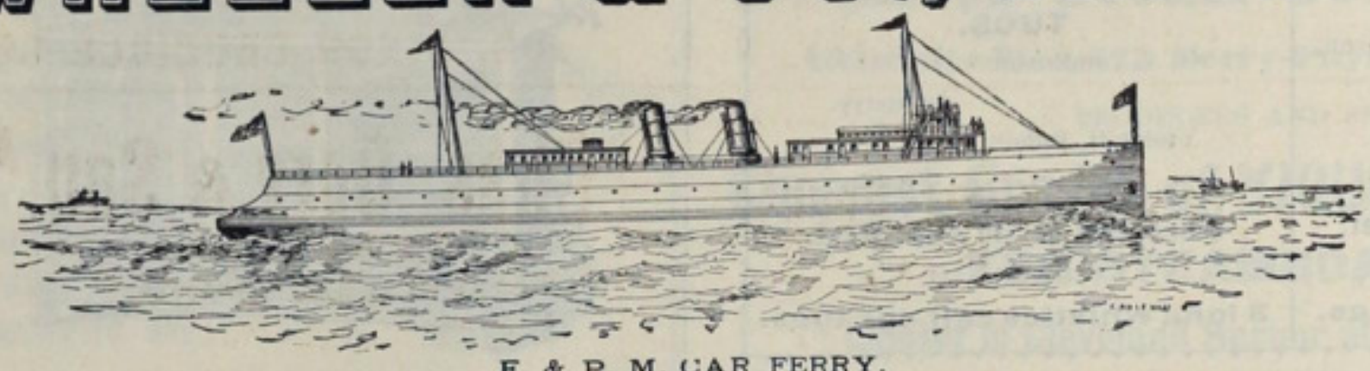

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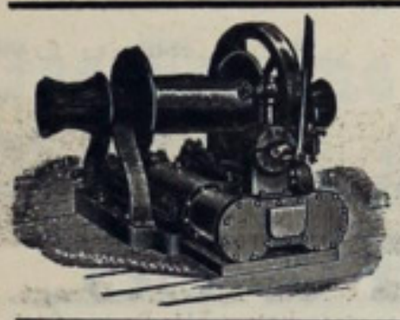

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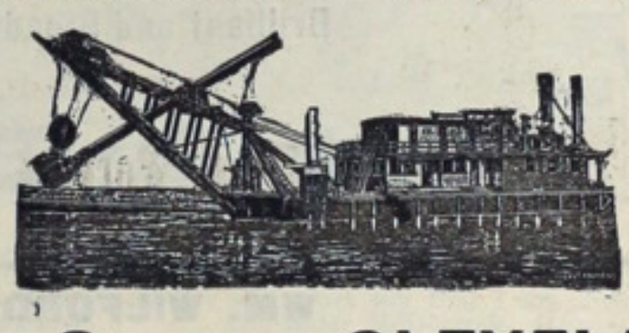

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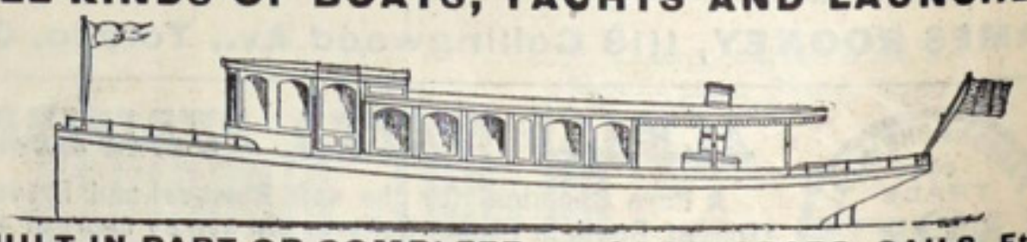

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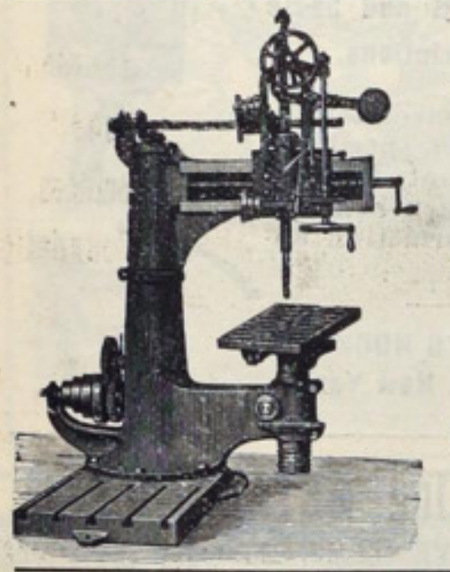

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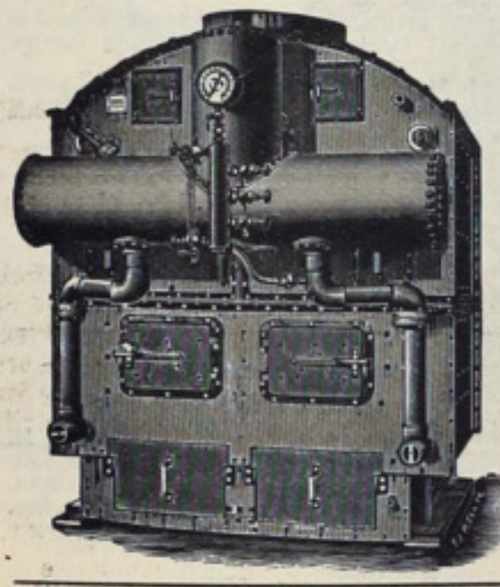

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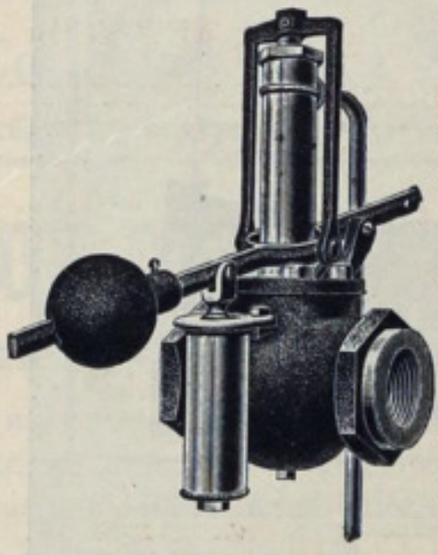

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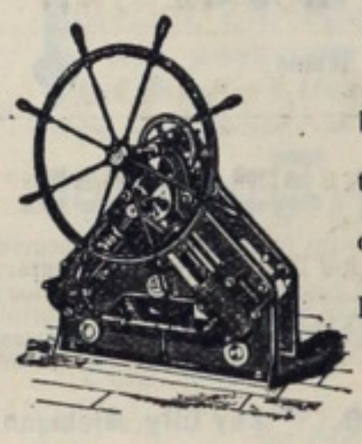

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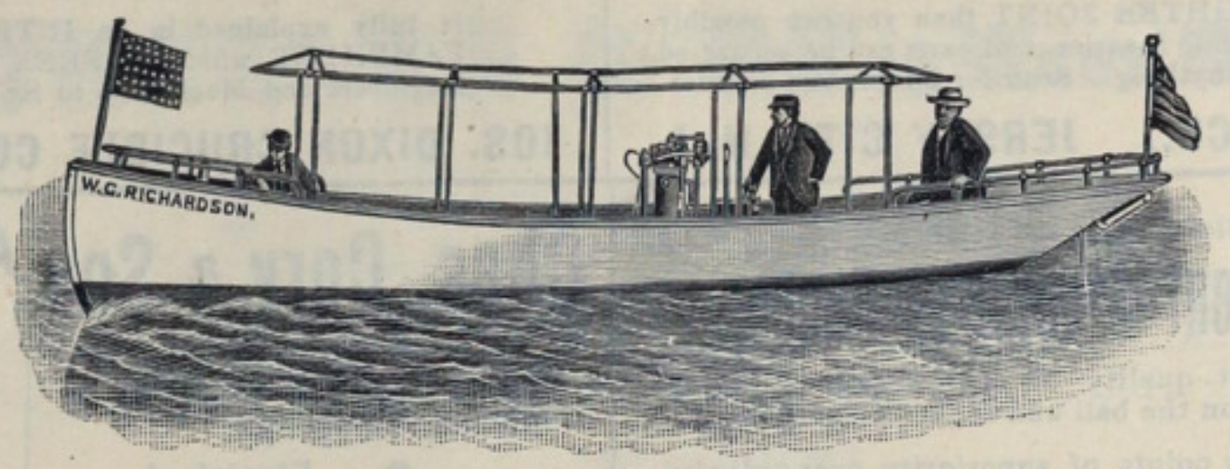

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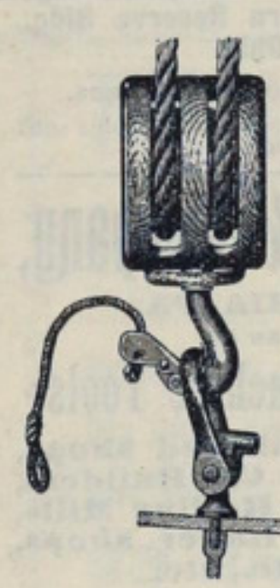

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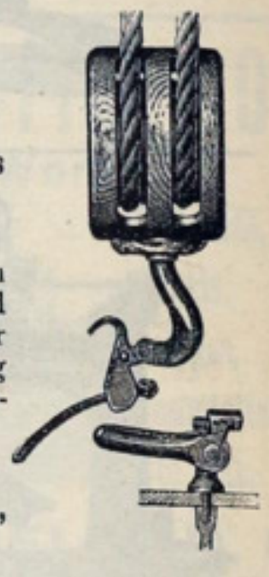

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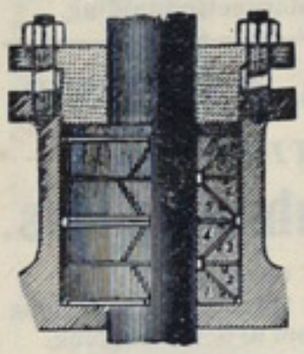

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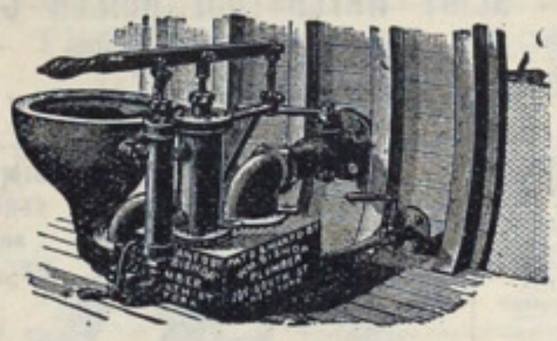

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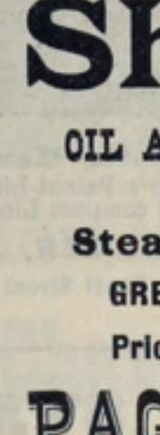

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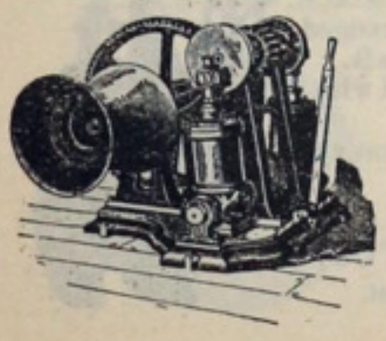

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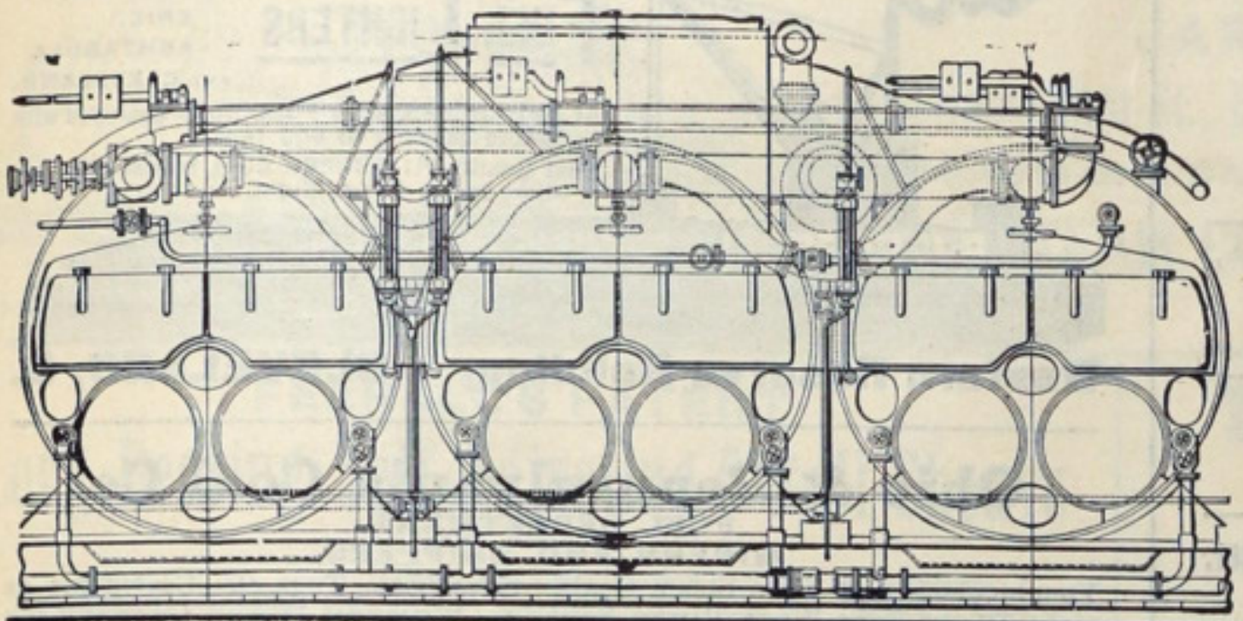

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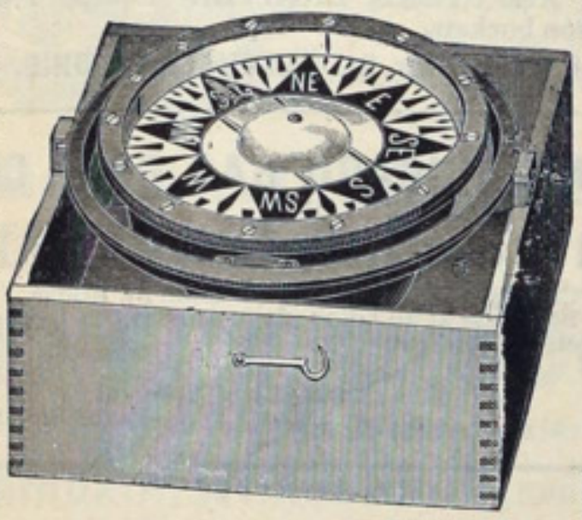

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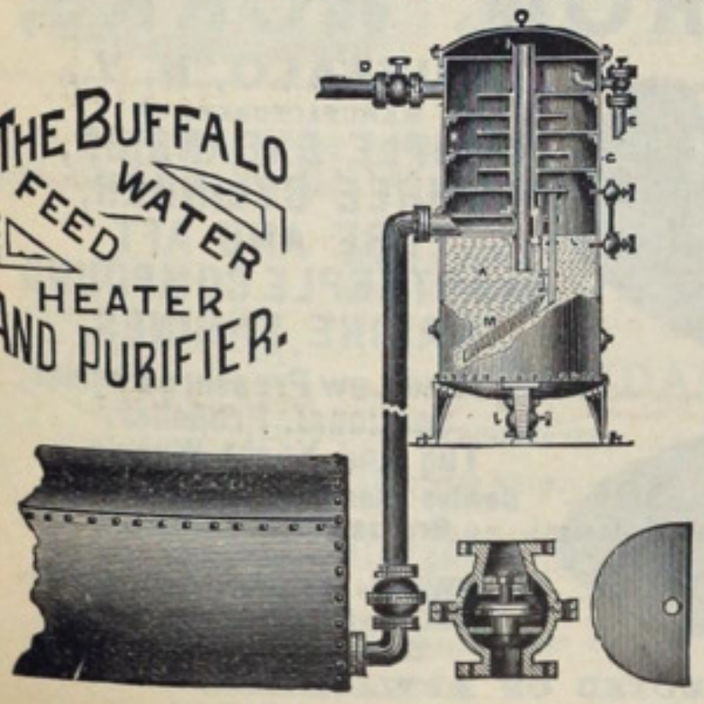

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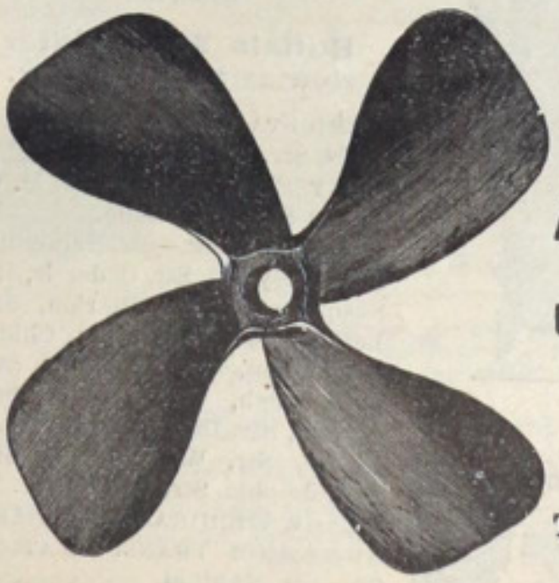

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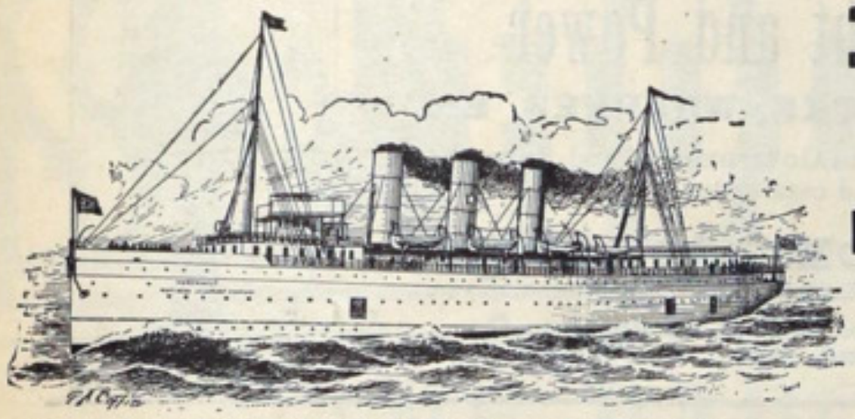

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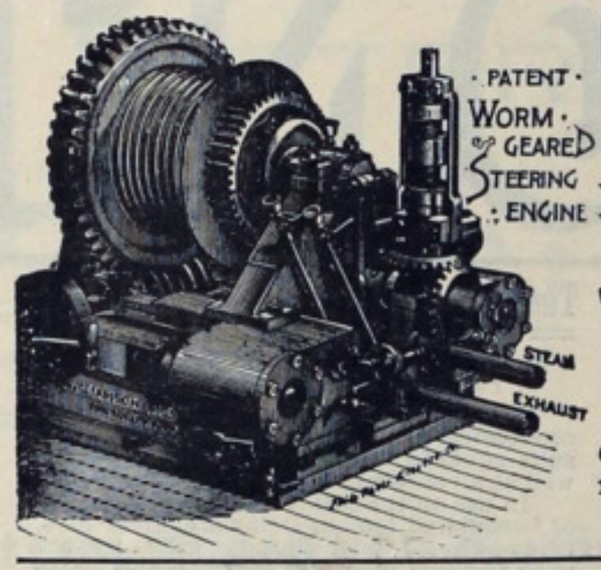

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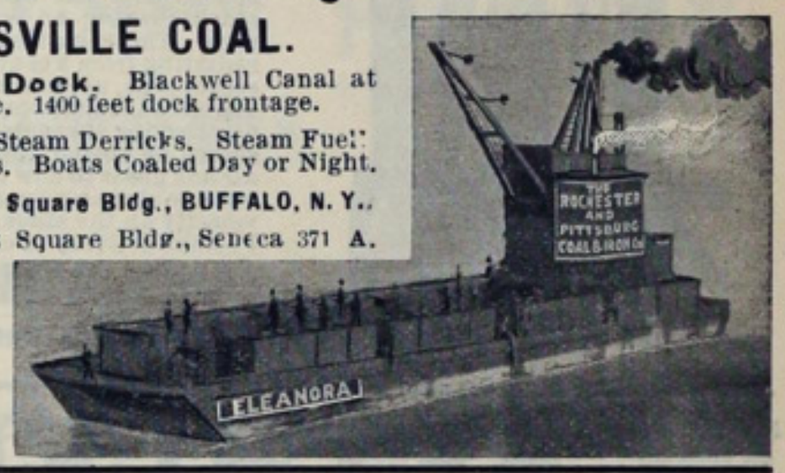

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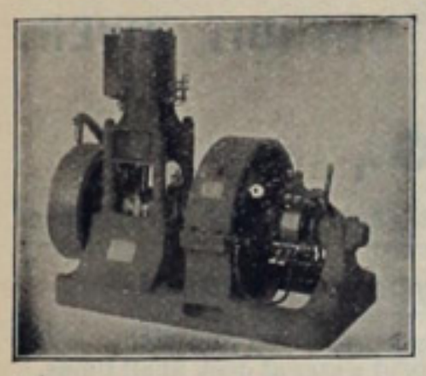

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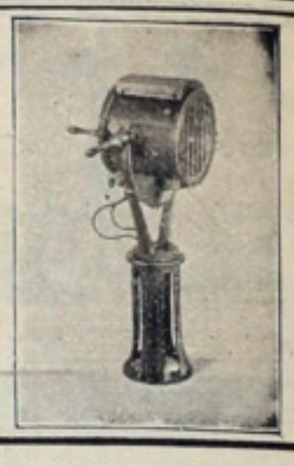

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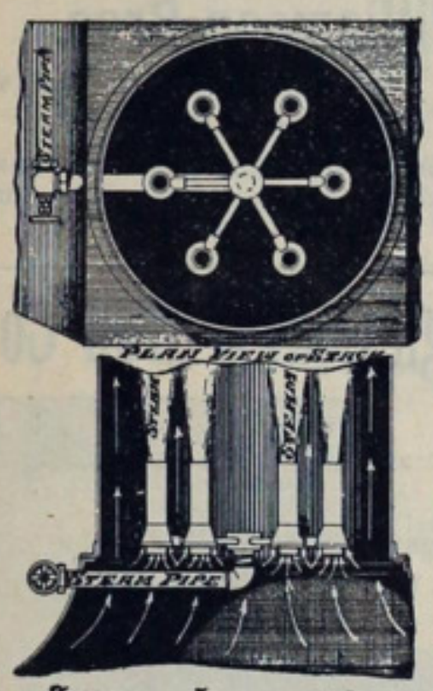

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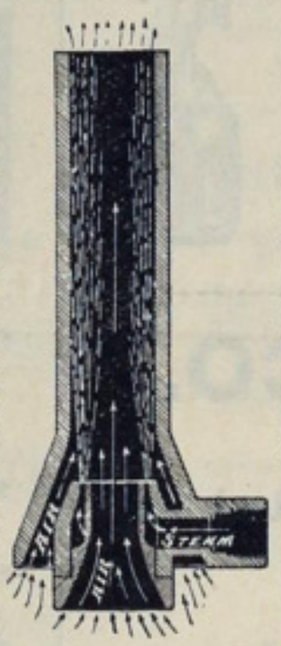

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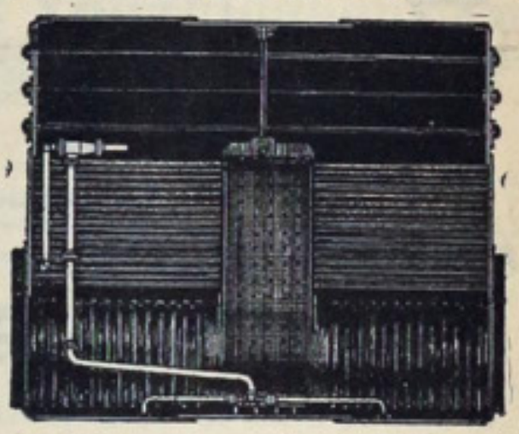

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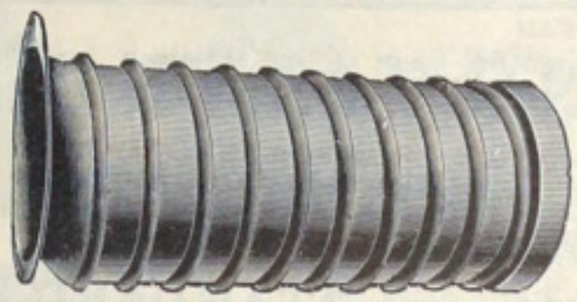

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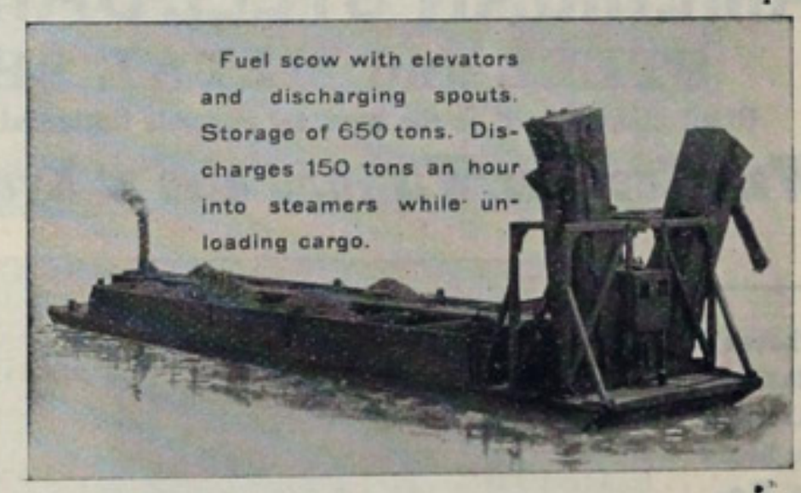
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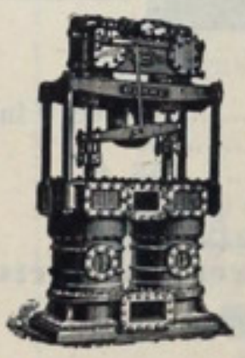

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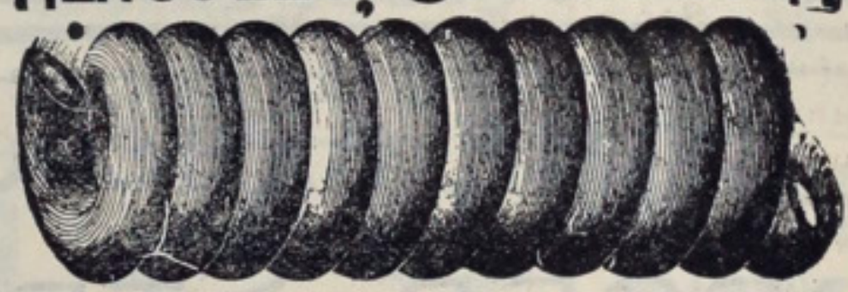

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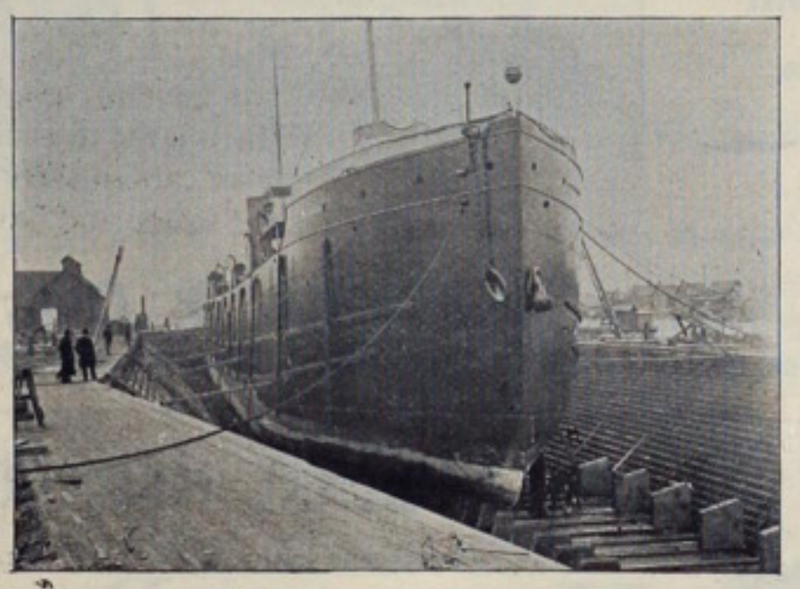

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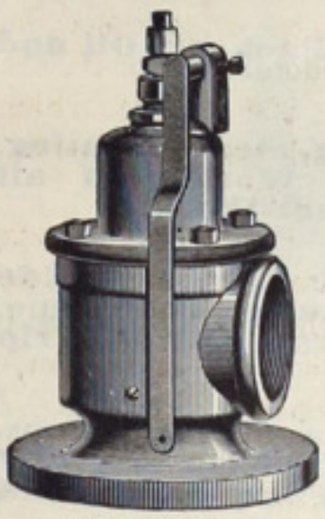

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